KRAMER ELECTRONICS LTD.

USER MANUAL

MODEL:

VP-794
Scaler-Switcher

VP-794
Operating Instructions

Version K 1.4

IMPORTANT NOTICE: When using extreme shrink to drive a single or few LED videowall modules the On Screen Display menu of VP-794 may become hardly readable. For this reason there is a front panel LCD display menu and an integrated Web server. Kramer provides a DiscoveryTool.exe to identify TCP/IP addresses of VP-794 units needed for Web browser control. The Tool can be found on the CD enclosed or on the Kramer Web page ***www.kramerelectronics.com*** **..**

This manual explains how to operate your VP-794 scaler-switcher. VP-794 is designed to provide users with a powerful and flexible method of driving large Projection or LED display devices.

If you have any queries relating to this or any other product supplied by Kramer visit our Web site www.kramerelectronics.com .

For technical support e-mail tech@kramerel.com

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SAFETY WARNING:

1. THERE ARE NO USER SERVICEABLE PARTS WITHIN THE UNIT. REMOVAL OF THE TOP COVER WILL EXPOSE DANGEROUS VOLTAGES. DO NOT OPERATE THE UNIT WITHOUT THE TOP COVER INSTALLED.

2. ENSURE THAT ALL ELECTRICAL CONNECTIONS (INCLUDING THE MAINS PLUG AND ANY EXTENSION LEADS) ARE PROPERLY MADE AND COMPLY WITH ELECTRICAL SAFETY REGULATIONS.

3. ENSURE THAT THE INTEGRITY OF THE EQUIPMENT ISOLATION BARRIER IS MAINTAINED WHEN CONNECTING TO OTHER EQUIPMENT. THIS MEANS THAT ONLY LOW VOLTAGE ISOLATED CIRCUITS MAY BE CONNECTED TO THE SIGNAL INPUTS AND OUTPUTS. IF ANY DOUBT EXISTS CONSULT QUALIFIED SERVICE PERSONNEL.

4. TO PREVENT SHOCK OR FIRE HAZARD DO NOT EXPOSE THIS EQUIPMENT TO RAIN OR MOISTURE. IF SUCH EXPOSURE OCCURS, REMOVE THE PLUG FROM THE MAINS OUTLET AND HAVE THE EXPOSED UNIT CHECKED BY QUALIFIED SERVICE PERSONNEL.

5. DO NOT CONTINUE TO OPERATE THE EQUIPMENT IF YOU HAVE ANY DOUBT ABOUT IT WORKING NORMALLY, OR IF IT IS DAMAGED IN ANY WAY. WITHDRAW THE MAINS PLUG FROM THE MAINS OUTLET AND CONSULT QUALIFIED SERVICE PERSONNEL.

6. DO NOT REMOVE ANY FIXED COVERS UNLESS YOU ARE QUALIFIED TO DO SO AND EVEN THEN WITHDRAW THE MAINS PLUG FROM THE MAINS OUTLET BEFORE YOU START.

7. THIS EQUIPMENT CONTAINS NO USER SERVICEABLE PARTS. REFER ALL SERVICING AND MAINTENANCE TO QUALIFIED SERVICE PERSONNEL.

8. TO AVOID EXPLOSION, DO NOT OPERATE THIS EQUIPMENT IN AN EXPLOSIVE ATMOSPHERE

INTRODUCTION

1.1. General Introduction

VP-794 is a very flexible image scalers developed specifically for driving large screen displays such as Projectors and LED videowalls in multiple screen applications from video or graphics sources.

VP-794 features the ability to switch between two internal sets of firmware, one optimised for Projection soft edge blend and warp and the other optimised for LED walls.

VP-794 features a state of the art digital image processors which provide market leading HD & SD per-pixel multiple low-angle motion-adaptive de-interlacing and automatic film 3:2 and 2:2 pull-down correction, significantly outperforming the capabilities of benchmark competitor products.

VP-794 features excellent image processing algorithms for the very best scaling, film and video noise reduction and MPEG artefact reduction.

VP-794 uses a very flexible high performance video input front end including true component video support in analog YPbPr and RGBS formats and 3GSDI, HDSDI, SDI digital formats as well as composite (CVBS) and YC/S-Video inputs.

A very high performance video decoder is utilised with 4x oversampling and 3D Y/C separation for outstanding video image clarity.

HDMI and DVI video with HDCP encryption is also supported, as are computer graphics inputs in SVGA analog and HDMI/DVI digital formats.

The output format can be set to I/O Lock mode where it locks the output frame rate to the input frame rate dynamically without frame rate conversion so as to reduce system latency, or it can be set to a fixed output frame rate for driving basic screens which are not 50Hz-compatible.

A Low latency mode with non-motion adaptive reduced processing is available to further reduce latency.

The output format can also be set to lock to an externally provided synchronization signal.

Outputs are available in VGA analog and DVI digital formats as well as 3GSDI serial digital formats which are useable simultaneously so that one output can drive the screen while the other runs a local monitor.

Note for the SDI output: Not all PC output formats are supported by 3GSDI standards in which case the 3GSDI output is disabled. Also note that if an HDCP encrypted signal is connected to the HDMI or DVI input, the DVI output signal will be similarly HDCP encrypted and the outputs that cannot be encrypted (VGA analog and the 3GSDI output) will be disabled.

Interlaced outputs are supported, there is a vertical temporal filter facility which greatly reduces interlace flicker.

VP-794 supports Pan, Tilt and Zoom to select a ‘region of interest’ portion of the input image, fill the screen and pan and tilt within it.

VP-794 by default is designed to drive projectors, in which case warp and soft edge blend features are available allowing adjustment for images to be rotated, tilted or optimised for flat and curved screens

VP-794 can also be operated in a mode to drive LED videowalls in this mode it provides output window size control down to minimum pixel count to fit a single LED videowall module at 128x96 pixels. The output window can be positioned anywhere within the chosen output resolution.

VP-794 is designed for multi screen projector and videowall installations. Auto Zoom and Edge Blend with elaborate Black Level Uplift is provided to stitch multiple projector images together. The same stitching is available to support LED videowalls which exceed the maximum output resolution of 1920x1200 pixels of a single VP-794.

Edge Blend (for projection applications) allows the brightness level of certain image regions to match the brightness of overlapping areas.

Auto Zoom automatically crops and zooms the input video image to display the section of the total image on the corresponding projector or screen.

System control is via a menu system either on screen or through the inbuilt TCP/IP Web server or via the built in LCD panel and jog dial.

The OSD (On Screen Display) is scaled to fit the chosen window.

Note: At extreme low pixel count resolutions the OSD is hardly readable and control from a Web browser or the inbuilt LCD is recommended.

Additionally a free API manual is published on our Website to allow the use of the LAN or RS232 remote control ports.

www.kramerelectronics.com .

1.2. Packing List

VP-794 is supplied with the following:

1) This manual

2) 3 pin plug IEC mains cable

3) DVI-D output cable

4) CD (documentation and PC tools)

VP-794 SYSTEM DESCRIPTION

2.1. Product Overview

VP-794 is designed to accept the following input signals:

- Composite video via BNC
- Composite video via RCA
- S-Video via 4-way miniDIN
- YPbPr or RGBS SD, ED, HD component video via 3 or 4 BNC connectors
- 3G-SDI, HD-SDI, SDI (Serial Digital Interface) via BNC
- VGA analog (computer interface) via 15HDD
- DVI (Digital Visual Interface) via DVI-I (supporting a digital and 2nd analog VGA input)
- HDMI via HDMI connector

2.2. Product Specification

This section provides technical details for all possible inputs.

Note that not all possible input options are applicable to all output formats.

2.2.1. Power Supply Requirement

100V-264VAC 50 and 60Hz connected via a standard IEC connector located on the rear panel.

2.2.2. Video Inputs

Composite via BNC and RCA connector, S-Video via 4-way mini DIN socket

Signal formats	Composite (CVBS), S-Video (Y/C)
Standards	NTSC, PAL, SECAM
Composite (CVBS) input level	1V p-p nominal incl. sync
Luminance (Y) input level	1V p-p nominal incl. sync
Chrominance (C) input level	0.6V p-p nominal
Input Impedance (all inputs)	75 Ohms

2.2.3. Component Video Inputs

Via 3 or 4 BNC connectors

YPbPr (YUV), YPbPrS, RGsB and RGBS component video, menu selectable.

Signal formats 484i (480i) and 576i (SD), 480p, 576p (ED), 720p, 1080i at 50, 59.94 and 60Hz and 1080p at 23.98, 24, 25, 29.97 and 30Hz.

Note this input does not support Computer SVGA signals which should be connected via the Computer SVGA input, The SVGA input supports the separate H & V syncs.

2.2.4. 3G-SDI Input

Format:	SD-SDI, HD-SDI and 3G-SDI YCbCr 4:2:2 serial digital component video
Input impedance:	75 ohms.

SMPTE 292M, SMPTE 259M-C and SMPTE 424M compliant, accepts 484i, 576i, 720, 1080i and 1080p single link formats at 270Mb, 1.485Gb or 2.97Gb rates.

2.2.5. Computer (SVGA) Inputs VESA formats

Signal formats:	DOS, VGA – WUXGA up to 165MHz pixel clock
RGB video level	0.7V - 1.0V
RGB input impedance	75 Ohms
Sync format	Separate H & V sync at TTL 5V levels.

2.2.6. HDMI & DVI Inputs

HDMI with or without HDCP, 36-bit video compatible.

DVI-D input with or without HDCP

Signal formats -video

484i and 576i (SD) in double-rate formats (1440 pixels per line), 480p, 576p (ED), 720p, 1080i at 50, 59.94 & 60Hz, 1080p at 24, 25, 30, 50, 59.94 & 60Hz.

Signal formats – computer
DOS, VGA – WUXGA up to 165 MHz pixel clock

2.2.7. Audio Output

Audio is embedded in HDMI and SDI video streams and brought into the VP-794 through the respective input channels. The audio is passed through the system and re-embedded into the HDMI and SDI output signals.

Also, VP-794 features a S/PDIF coaxial digital audio output connector for monitoring audio of the HDMI and SDI channel.

When HDMI is selected as the input channel the HDMI EDID is read by a video source such as a Blue Ray Player. VP-794 allows the source to provide the formats shown under output formats for HDMI in the below table. (Note: Note: Dolby TrueHD and DTS HD-Master are not in the list of audio formats and thus not supported.)

All formats are re-embedded into the HDMI output data stream, those which are not allowed on the SDI or SPDIF output are muted on the individual channels.

Output Channel	Output Format
HDMI	PCM up to 8ch, up to 24Bit, up to 192kHz sampling rate (incl. 32kHz,44.1kHz,48kHz,96kHz,192kHz) Dolby Digital (AC3) up to 5.1 channels, up to 640kBit/sec bit stream rate MPEG2 up to 8ch, up to 112kBit/sec bit stream rate DTS up to 6.1 channels, up to 1536kBit/sec bit stream rate
SDI	PCM up to 8ch, up to 24Bit, 48kHz sampling rate
SPDIF	PCM up to 2ch, up to 24Bit, up to 96kHz sampling rate (incl. 32kHz,44.1kHz,48kHz,96kHz) Dolby Digital (AC3) up to 5.1 channels DTS up to 6.1 channels

2.2.8. Display Output

Three output connectors are provided which are useable simultaneously, provided that the input signal is not HDCP encrypted.

When the input signal has HDCP encryption, the DVI-D output connector will carry a similarly HDCP encrypted signal, the VGA and 3G-SDI connectors will be disabled.

When an HDCP encrypted signal is input, but the display device does not support HDCP, the output image will turn black and a message indicating HDCP Signal will come up to indicate this.

There is a DVI-D output and a VGA style output. Both conform to normal VESA standards for connectors and pin outs for these signal types.

The DVI-D connector will support HDMI with 36-bit video and audio formats when connected to a suitable HDMI receiver. The color depth of the HDMI signal is determined by the set-up of VP-794 and the capabilities of the monitor. The bit depth per color channel is displayed in the output section of the menu system

The 3G-SDI BNC output supports the same formats as accepted by the 3G-SDI input.

Note: The processor's HDCP compliance can be turned off. This is of importance particularly when using a MAC computer as the source. A MAC will encrypt it's output signal if a compliant device is seen attached to it's output. By turning off the HQView processor's compliance the MAC will see a non-compliant device and therefore will not encrypt its output.

The following output modes can be set up:
(HFP/VFP: horizontal and vertical front porch, HBP/VBP: horizontal and vertical front porch, HS/VS: horizontal and vertical sync, HTot/VTot: horizontal and vertical total pixels)

Hor Pix	Ver Pix	HTot	HFP	HS	HBP	VTot	VFP	VS	VBP	Hor Freq	Ver Freq	Pix Clock	Specification
640	480	800	16	96	48	525	10	2	33	31.47	59.94	25.175	VESA DMT
640	480	800	16	96	48	629	62	2	85	31.46	50.02	25.170	proprietary
640	480	800	16	96	48	629	62	2	85	30.19	48.00	24.154	proprietary
800	600	1056	40	128	88	628	1	4	23	37.88	60.31	40.000	VESA DMT
800	600	1056	40	128	88	628	1	4	23	31.40	50.00	33.158	VESA 60 - CLK wind down
800	600	1056	40	128	88	628	1	4	23	30.14	48.00	31.832	proprietary
1024	768	1344	24	136	160	806	3	6	29	48.36	60.00	65.000	VESA DMT
1024	768	1312	40	104	144	793	3	4	18	39.63	49.98	52.000	VESA CVT 001M3
1024	768	1312	40	104	144	793	3	4	18	38.11	48.06	50.000	proprietary
1280	768	1664	64	128	192	798	3	7	20	47.78	59.87	79.500	VESA CVT 001M9/VESA DMT
1280	768	1648	56	128	184	793	3	7	15	39.59	49.93	65.250	VESA CVT001M9
1280	768	1648	56	128	184	793	3	7	15	38.06	48.00	62.730	proprietary
1280	800	1680	72	128	200	831	3	6	22	49.70	59.81	83.500	VESA CVT 001MA/VESA DMT
1280	800	1680	72	128	200	831	3	6	22	41.55	50.00	69.804	propietary
1280	800	1680	72	128	200	831	3	6	22	39.89	48.00	67.012	propietary
1280	1024	1688	48	112	248	1066	1	3	38	63.98	60.02	108.000	VESA DMT
1280	1024	1688	48	112	248	1066	1	3	38	53.32	50.02	90.000	VESA 60 - CLK wind down
1280	1024	1688	48	112	248	1066	1	3	38	51.17	48.00	86.370	proprietary
1360	768	1792	64	112	256	795	3	6	18	47.71	60.02	85.500	VESA AddDMT
1360	768	1744	56	136	192	793	3	5	17	39.56	49.89	69.000	VESA CVT 001M9
1360	768	1688	48	112	248	1066	1	3	38	51.17	48.00	86.370	proprietary
1366	768	1792	26	100	300	795	4	3	20	47.70	60.00	85.478	proprietary
1366	768	1792	26	100	300	795	4	3	20	39.75	50.00	71.232	proprietary
1400	1050	1864	88	144	232	1089	3	4	32	65.31	59.98	121.750	VESA CVT 001M3/VESA DMT
1400	1050	1864	88	144	232	1089	3	4	32	54.43	49.98	101.458	VESA 60 - CLK wind down
1400	1050	1864	88	144	232	1089	3	4	32	52.27	48.00	97.435	proprietary
1440	900	1904	80	152	232	934	3	6	25	55.93	59.89	106.500	CVT 1.30MA/VESA DMT
1440	900	1872	72	144	216	929	3	6	20	46.34	49.88	86.750	VESA CVT 001MA
1600	1200	2160	64	192	304	1250	1	3	46	75.00	60.00	162.000	VESA DMT
1600	1200	2128	96	168	264	1238	3	4	31	61.80	49.92	131.500	VESA CVT 002M3
1600	1200	2128	96	168	264	1238	3	4	31	59.42	48.00	126.450	proprietary
1680	1050	2240	104	176	280	1089	3	6	30	65.29	59.95	146.250	VESA CVT 002MA
1680	1050	2208	88	176	264	1083	3	6	24	54.12	49.97	119.500	VESA CVT 002MA
1680	1050	2208	88	176	264	1083	3	6	24	51.98	48.00	114.780	proprietary
1920	1200	2080	48	32	80	1235	3	6	26	74.04	59.95	154.000	VESA CVT 002MA-R/VESA DMT
1920	1200	2080	48	32	80	1129	3	6	20	61.42	49.97	127.750	VESA CVT calculated
1920	1200	2080	48	32	80	1235	3	6	26	29.64	24.00	61.650	proprietary
1920	1200	2080	48	32	80	1129	3	6	20	59.28	48.00	123.300	proprietary
720	480	858	19	62	57	525	27	3	15	31.47	59.94	13.500	EIA/CEA-861-B Format 6
720	576	864	12	63	69	625	27	3	19	31.25	50.00	13.500	EIA/CEA-861-B Format 24
720	576	864	12	63	69	625	28	3	18	30.00	48.00	12.960	proprietary
720	480	858	16	62	60	525	9	6	30	31.47	59.94	27.000	EIA/CEA-861-B Format 2
720	576	864	12	64	68	625	5	5	39	31.25	50.00	27.000	EIA/CEA-861-B Format 17
720	576	864	12	64	68	625	5	5	39	30.00	48.00	25.920	proprietary
1280	720	1650	110	40	220	750	5	5	20	44.95	59.94	74.176	EIA/CEA-861-B Format 4
1280	720	1980	440	40	220	750	5	5	20	37.50	50.00	74.250	EIA/CEA-861-B Format 19
1280	720	4125	2585	40	220	750	5	5	20	17.98	23.98	74.176	SMPTE 296M-1997 Format 8
1280	720	2063	483	40	260	750	5	5	20	35.97	47.96	74.176	proprietary
1920	1080	2200	88	44	148	1125	25	5	15	67.43	59.94	74.176	EIA/CEA-861-B Format 5
1920	1080	2640	528	44	148	1125	25	5	15	56.25	50.00	74.250	EIA/CEA-861-B Format 20
1920	1080	2750	638	44	148	1125	25	5	15	53.95	47.95	74.176	SMPTE 274-1998 Format 11
1920	1080	2750	638	44	148	1125	25	5	15	53.95	47.95	74.176	SMPTE 274-1998 Format 10
1920	1080	2200	88	44	148	1125	4	5	36	67.43	59.94	148.352	EIA/CEA-861-B Format 16
1920	1080	2640	528	44	148	1125	4	5	36	56.25	50.00	148.500	EIA/CEA-861-B Format 31
1920	1080	2750	638	44	148	1125	4	5	36	26.97	23.98	74.176	EIA/CEA-861-B Format 32
1920	1080	2640	440	88	192	1125	3	5	37	53.95	47.95	142.418	proprietary

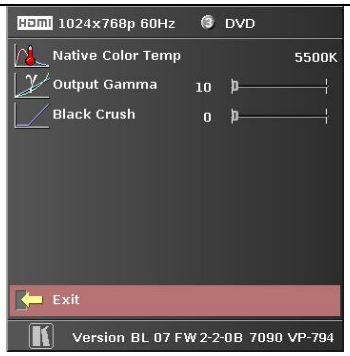
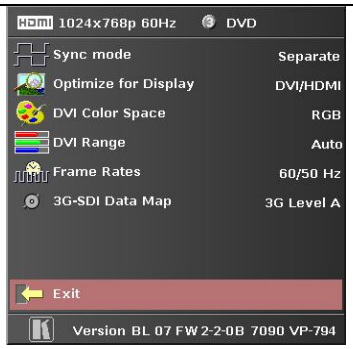
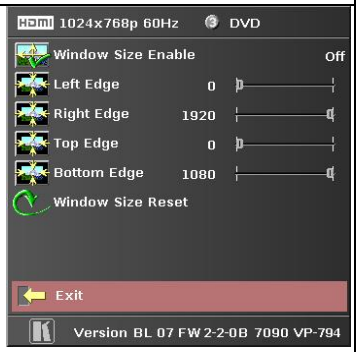
VP-794 CONTROL

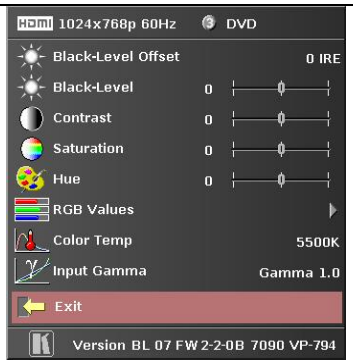
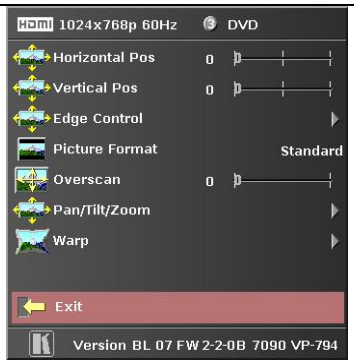
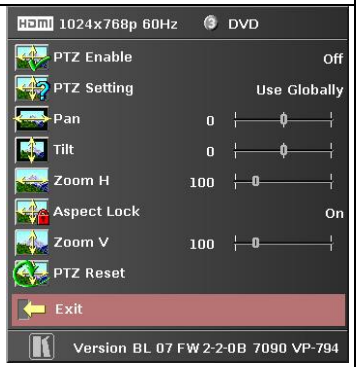
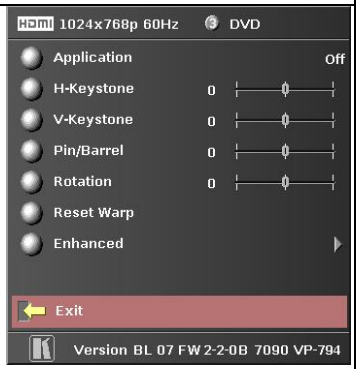
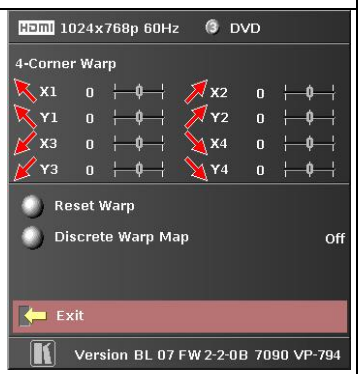
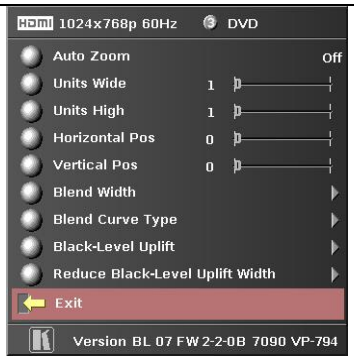
3.1. Menu Tree

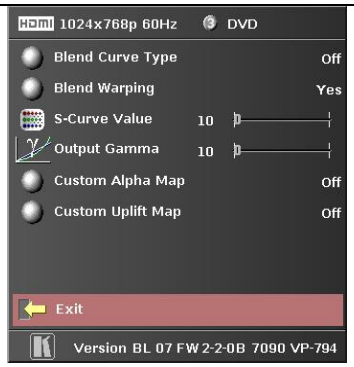
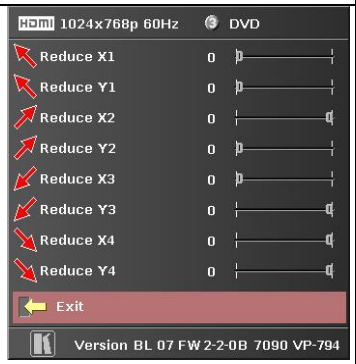
VP-794 has an On-Screen-Display (OSD) menu and a front panel LCD to control the unit. The (OSD) menu can be switched ON or OFF.

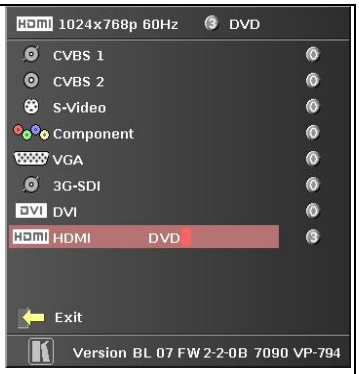
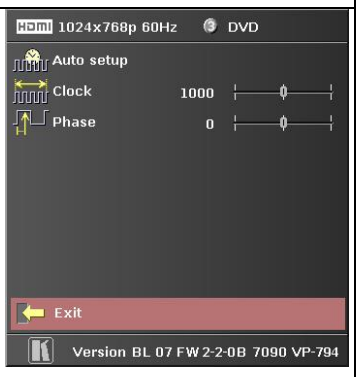
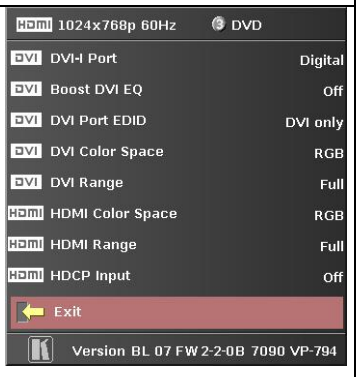
The same menu structure is also available through a Web browser allowing control from a PC.

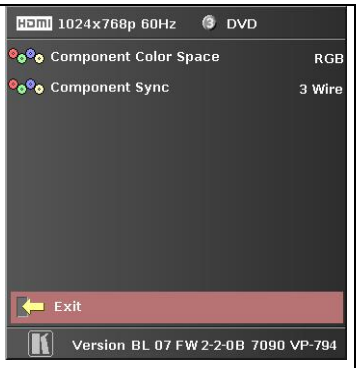
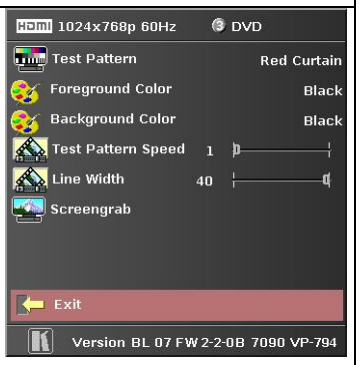
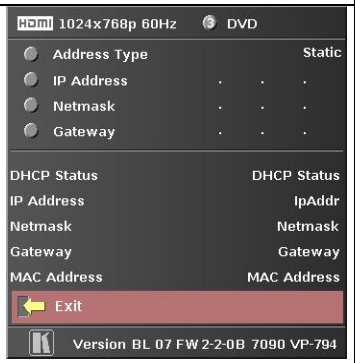
3.1.1. OSD

1st Level	2nd Level	3rd Level	4th Level
			
			
			

	 1024x768p 60Hz DVD Black-Level Offset 0 IRE Black-Level 0 Contrast 0 Saturation 0 Hue 0 RGB Values Color Temp 5500K Input Gamma Gamma 1.0 Exit Version BL 07 FW 2-2-0B 7090 VP-794	1024x768p 60Hz DVD Red Bias 0 Red Gain 0 Green Bias 0 Green Gain 0 Blue Bias 0 Blue Gain 0 Exit Version BL 07 FW 2-2-0B 7090 VP-794	
	 1024x768p 60Hz DVD Horizontal Pos 0 Vertical Pos 0 Edge Control Picture Format Standard Overscan 0 Pan/Tilt/Zoom Warp Exit Version BL 07 FW 2-2-0B 7090 VP-794	1024x768p 60Hz DVD Left Edge 0 Right Edge 0 Top Edge 0 Bottom Edge 0 Exit Version BL 07 FW 2-2-0B 7090 VP-794	
		 1024x768p 60Hz DVD PTZ Enable Off PTZ Setting Use Globally Pan 0 Tilt 0 Zoom H 100 Aspect Lock On Zoom V 100 PTZ Reset Exit Version BL 07 FW 2-2-0B 7090 VP-794	
		 1024x768p 60Hz DVD Application Off H-Keystone 0 V-Keystone 0 Pin/Barrel 0 Rotation 0 Reset Warp Enhanced Exit Version BL 07 FW 2-2-0B 7090 VP-794	 1024x768p 60Hz DVD 4-Corner Warp X1 0 X2 0 Y1 0 Y2 0 X3 0 X4 0 Y3 0 Y4 0 Reset Warp Discrete Warp Map Off Exit Version BL 07 FW 2-2-0B 7090 VP-794
	 1024x768p 60Hz DVD Auto Zoom Off Units Wide 1 Units High 1 Horizontal Pos 0 Vertical Pos 0 Blend Width Blend Curve Type Black-Level Uplift Reduce Black-Level Uplift Width Exit Version BL 07 FW 2-2-0B 7090 VP-794	1024x768p 60Hz DVD Left Blend Region 100 Right Blend Region 100 Top Blend Region 100 Bot Blend Region 100 Left Blend Offset 0 Right Blend Offset 0 Top Blend Offset 0 Bot Blend Offset 0 Exit Version BL 07 FW 2-2-0B 7090 VP-794	

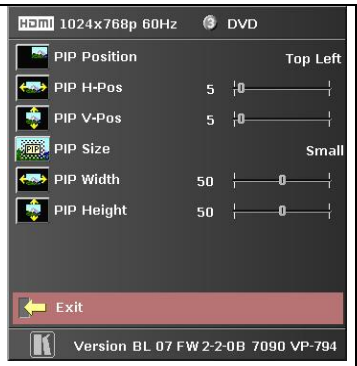
		 1024x768p 60Hz DVD Blend Curve Type Off Blend Warping Yes S-Curve Value 10 Output Gamma 10 Custom Alpha Map Off Custom Uplift Map Off Exit Version BL 07 FW 2-2-0B 7090 VP-794	
		1024x768p 60Hz DVD Non Blend Region 0 Top Left 0 Top Middle 0 Top Right 0 Middle Left 0 Middle Right 0 Bottom Left 0 Bottom Middle 0 Bottom Right 0 Exit Version BL 07 FW 2-2-0B 7090 VP-794	
		 1024x768p 60Hz DVD Reduce X1 0 Reduce Y1 0 Reduce X2 0 Reduce Y2 0 Reduce X3 0 Reduce Y3 0 Reduce X4 0 Reduce Y4 0 Exit Version BL 07 FW 2-2-0B 7090 VP-794	
	1024x768p 60Hz DVD Sharpness 0 Detail 0 Video Filters Flicker Filter Exit Version BL 07 FW 2-2-0B 7090 VP-794	1024x768p 60Hz DVD LTI Level 0 CTI Level 0 TRNR 0 MNR 0 CCS Off Exit Version BL 07 FW 2-2-0B 7090 VP-794	
		1024x768p 60Hz DVD Filter Strength 2 Filter Recursion Off Exit Version BL 07 FW 2-2-0B 7090 VP-794	

	1024x768p 60Hz DVD User USER 1 Names/Profiles Input Config Display Mode Low Latency Menu Settings Network Settings Factory Defaults Operation Mode PIP/Single Unit Exit Version BL 07 FW 2-2-0B 7090 VP-794	1024x768p 60Hz DVD Input name User name Reset Profile Load Profile from Save profile as Exit Version BL 07 FW 2-2-0B 7090 VP-794 -	 1024x768p 60Hz DVD CVBS 1 CVBS 2 S-Video Component VGA 3G-SDI DVI HDMI DVD Exit Version BL 07 FW 2-2-0B 7090 VP-794
			1024x768p 60Hz DVD User 1 SURGEON 1 User 2 User 3 User 4 Exit Version BL 07 FW 2-2-0B 7090 VP-794
		1024x768p 60Hz DVD VGA Setup DVI/HDMI Setup SDI Setup Component Setup Test Pattern Setup Switching Transition Freeze Exit Version BL 07 FW 2-2-0B 7090 VP-794	 1024x768p 60Hz DVD Auto setup Clock 1000 Phase 0 Exit Version BL 07 FW 2-2-0B 7090 VP-794
			 1024x768p 60Hz DVD DVI-I Port Digital Boost DVI EQ Off DVI Port EDID DVI only DVI Color Space RGB DVI Range Full HDMI Color Space RGB HDMI Range Full HDCP Input Off Exit Version BL 07 FW 2-2-0B 7090 VP-794
			1024x768p 60Hz DVD 3G Level B Stream Stream 1 SDI Audio Group Channels 0,1 SDI Audio Routing HDMI & SDI Exit Version BL 07 FW 2-2-0B 7090 VP-794

			 1024x768p 60Hz DVD Component Color Space RGB Component Sync 3 Wire Exit Version BL 07 FW 2-2-0B 7090 VP-794
			 1024x768p 60Hz DVD Test Pattern Red Curtain Foreground Color Black Background Color Black Test Pattern Speed 1 Line Width 40 Screengrab Exit Version BL 07 FW 2-2-0B 7090 VP-794
		1024x768p 60Hz DVD Language English (AE) Keypad Lock Off Menu Display Time 5 sec Menu Position Center OSD Messaging Off OSD Enable Off LCD Backlight 0 Jog Push Enable Off Exit Version BL 07 FW 2-2-0B 7090 VP-794	
		 1024x768p 60Hz DVD Address Type Static IP Address Netmask Gateway DHCP Status DHCP Status IP Address IpAddr Netmask Netmask Gateway Gateway MAC Address MAC Address Exit Version BL 07 FW 2-2-0B 7090 VP-794	
	1024x768p 60Hz DVD User USER 1 Names/Profiles Input Config Reset to Factory Defaults? Yes No Network Settings Factory Defaults Operation Mode PIP/Single Unit Exit Version BL 07 FW 2-2-0B 7090 VP-794		

1024x768p 60Hz
DVD
Input
DVD
Output
Color
Geometry
PIP
Enhancement
System
Auto setup
Exit
Version BL 07 FW 2-2-0B 7090 VP-794

1024x768p 60Hz
DVD
PIP Input
CVBS 1
PIP Mode
Off
PIP Adjust
PIP Hide
Show
Show/Hide Transition
Instantly
Exit
Version BL 07 FW 2-2-0B 7090 VP-794


1024x768p 60Hz
DVD
PIP Position
Top Left
PIP H-Pos
5
PIP V-Pos
5
PIP Size
Small
PIP Width
50
PIP Height
50
Exit
Version BL 07 FW 2-2-0B 7090 VP-794

3.1.2. LCD panel

1st Level	2nd Level	3rd Level	4th Level
>Input S-VIDEO Output >>Color >>Geometry >>Multiple Unit >>Enhancement >>System >>Auto setup >>Exit >	>Display Type >>Gamma/Color/Crush >>Output Config >>Output Window Size>>Exit >	>Display Projector O/P Mode 720p Location Front TT Frame Rate 60 Hz I/O Lock Off Exit >	
		>Native Color 6500K Output Gamma 2.2 Black Crush 0 Exit >	
		>Sync mode Separate Display DVI DVI Colorspace RGB DVI Range Default Framerates 60/50/24 SDI Data 422YCbCr Exit >	
		>Window Size On Left Edge 1280 Right Edge 0 Top Edge 72 Bottom Edge 0 Window Size Reset . Exit >	
	>BL-Offset 7.5 IRE Black-Level 0 Contrast 0 Saturation 0 Hue 0 RGB Values >>Color Temp 6500K Input Gamma 2.2 Exit >	>Red Bias 0 Red Gain 0 Green Bias 0 Green Gain 0 Blue Bias 0 Blue Gain 0 Exit >	
	H-Position 12 V-Position 22 Edge Control >>Pict.Format Std. Overscan 1 Warp >>Exit >	>Left Edge 0 Right 0 Top 0 Bottom 0 Exit >	
		>PTZ Enable On PTZ Settin Use Glob Pan 0.0 Tilt 0.0 Zoom H 100.0 Aspect Lock Off Zoom V 100.0 PTZ Reset . Exit >	
		>Application PC [H-Keystone N/A] [V-Keystone N/A] [Pin/Barrel N/A] [Rotation N/A] Reset Warp . Enhanced >>Exit >	[X1 N/A] [Y1 N/A] [X2 N/A] [Y2 N/A] [X3 N/A] [Y3 N/A] [X4 N/A] [Y4 N/A] >Reset Warp . Discrete Warp M Off

			Exit >
	>Auto Zoom Off Units Wide 3 Units High 3 H-Position 1 V-Position 1 Blend Width > Blend Curve Type > Black-Level Uplift> Exit >	>L Blend Reg 200 R Blend Reg 200 T Blend Reg 200 B Blend Reg 200 R Blend Reg 200 L Blend Off 0 R Blend Off 0 T Blend Off 0 B Blend Off 0 Exit >	
		>Blend Curv Align Pa Blend Warping Yes S-Curve Value 1.6 Output Gamma 2.2 [Custom Alpha M N/A] [Custom Uplift N/A] Exit >	
		>Non Blend Reg 0 Top L 0 Top M 0 Top R 0 Mid L 0 Mid R 0 Bot L 0 Bot M 0 Bot R 0 Exit >	
		>Reduce X1 0 Reduce Y1 0 Reduce X2 0 Reduce Y2 0 Reduce X3 0 Reduce Y3 0 Reduce X4 0 Reduce Y4 0 Exit >	
	>Sharpness 20 Detail 1 Video Filter > Flicker Filter > Exit >	>LTI Level 0 CTI Level 0 TRNR 3 MNR 0 CCS Off Exit >	
		>_Filter Stren 2 Filter Recursio Off Exit >	
	>User USER 1 Names/Profiles > Input Config > Disp.Mode BestPic Menu Settings > Network Settings > Factory Default > Operation MulUnit Exit >	>Input Name > User name > Reset Profile > Load Profile from. Save Profile as . Exit >	>CVBS1 CVBS1 . CVBS2 CVBS2 . S-Video S-VIDEO . Component COMP . VGA VGA . 3G-SDI 3G-SDI . DVI DVI . HDMI HDMI . Exit >
			>User 1 USER 1 . User 2 USER 2 . User 2 USER 2 . User 2 USER 2 . Exit >
		>VGA Setup > DVI/HDMI Setup > SDI Setup > Component Setup >	>Auto setup . Clock 1764 Phase 15 Exit >

		Test Pattern Setup> Switching Freeze Exit >	
			>DVI-I Port Digital Boost DVI EQ Off DVI EDID DVI only DVI Colspace Auto DVI Range Auto HDMI Colspace Auto HDMI Range Auto HDCP Input On Exit >
			>3G Level B Stream 1 Audio Map Stereo12 SDI Audio HDMI & S Exit >
			>Comp. CSpace YPbPr Comp. Sync 3 Wire Exit >
			>Test Pat. Moving FG Color White BG Color Black Speed 1 Line Width 40 [Screengrab N/A] Exit >
		>Language English Keypad Lock Off MenuTime 15 sec Menu Pos. Center OSD Messaging Off OSD Enable Off LCD Backlight 10 Jog Push Enable On Exit >	
		>Address Type DHCP [IP N/A] [Net N/A] DHCP Addr.obtained IP 192.168.251.5 NM 255.255.255.0 M 9C-5E-73-00-39-AA Exit >	
>Input S-VIDEO Output > Color > Geometry > PIP > Enhancement > System > Auto setup > Exit >	>PIP Input COMP. PIP Mode Off PIP Adjust > PIP Hide Show Show/Hide Instantly Exit >	PIP Pos. Free H/W PIP H-Pos 5 PIP V-Pos 5 PIP Size Large PIP Width 50 PIP Height 50 Exit >	

3.1.3. Web Browser

The factory default is DHCP.

The Network Settings menu allows to configure the VP-794 TCP/IP address. Under Address Type a static or DHCP leased address can be chosen. The static address and Netmask needs to be entered manually.

The Network Settings menu has a section with information on the DHCP Status and IP address assigned to the board, as well as the fixed MAC Address programmed into the VP-794. The DHCP status is OFF when static assignment is used or it displays an address when DHCP has leased an address accordingly or it is None assigned if the lease was not successful.

Note: When changing from DHCP to Static mode or vice versa it is strongly recommended that VP-794 is powered down after such a change, then powered back up, so that it is properly recognised by other devices on the network.

3.2. Installing the Software

No extra software needs to be installed on a PC. The PC Web browser is used as the graphical user interface for all control items. To connect to the VP-794 the TCP/IP address of the unit has to be entered into the address list box of the Web browser in the following format http://xxx.xxx.xxx.xxx. The TCP/IP address assigned to VP-794 can be found in the System and Network Settings menu.

3.3. Discovery Tool

Kramer provides a DiscoveryTool.exe Windows application to identify Kramer boxes in the network.

www.kramerelectronics.com **.**

Clicking on the link of the recognized box will open a browser and make a connection to the corresponding box. The box identifier is made up of “PV6S” in the case of VP-794 followed by the 6 least significant digits of the MAC address. The MAC address of the box can be found in the System/Network Settings menu.

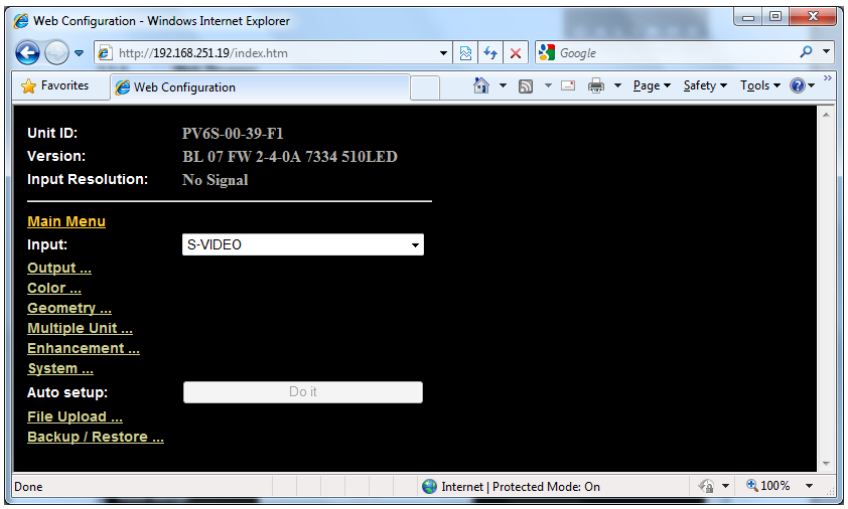
Note: This is for use on a network not on a single wire connection.

3.4. Software Operation

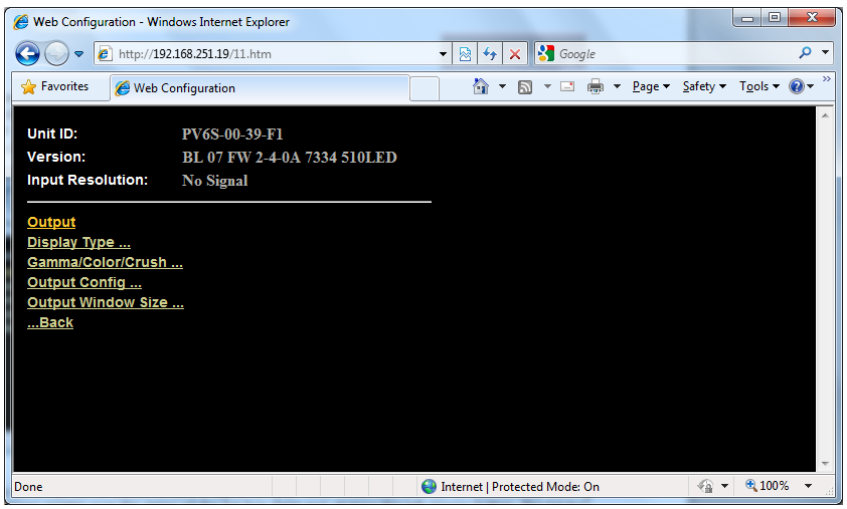
Once the address has been entered the Web browser starts to load pages from the VP-794 mirroring the menu system of the unit. All menu items are shown as their respective buttons, sliders and list boxes and can be accessed and altered with the PC mouse or corresponding navigational key presses.

To control VP-794 through a network start a Web Browser and enter the TCP/IP address of the unit in the address field of the browser. A “Loading Please Wait” message will appear in the browser window and the Web server of VP-794 will mirror the menu into the browser.

The main menu will be displayed. The Unit ID above the menu is composed of the board identifier PV6S followed by the 6 least significant digits of the MAC address.



The menu system can be navigated with the PC mouse. Move the mouse pointer over the menu item and click the left mouse button to open a submenu. Submenus have three dots following the menu name. Below the Unit ID you find the name of the current active submenu. Move the mouse pointer over the Back item and click the left mouse button to go back to the prior menu.

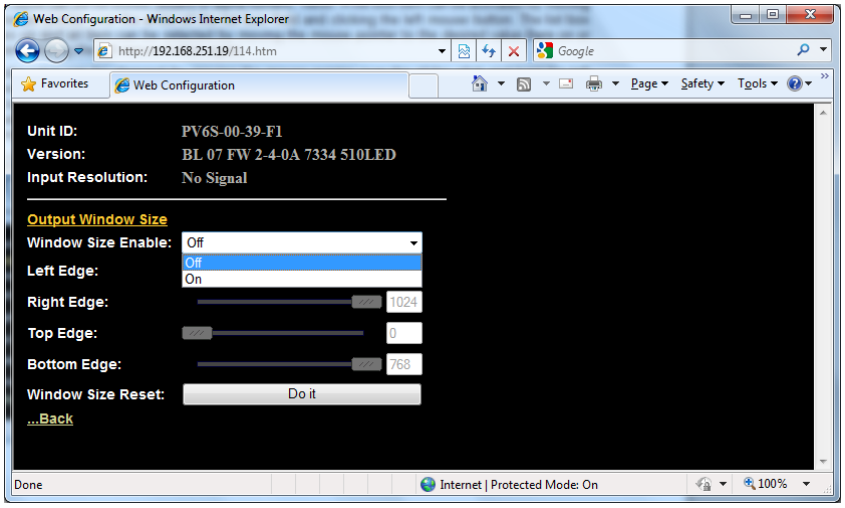


Menu items can be lists, sliders or alpha numeric fields.

A list item can be activated by moving the mouse pointer over the list item and clicking the left mouse button. The list comes up and an item can be selected by moving the mouse pointer to the desired value (ON or OFF) and clicking the left mouse button again.

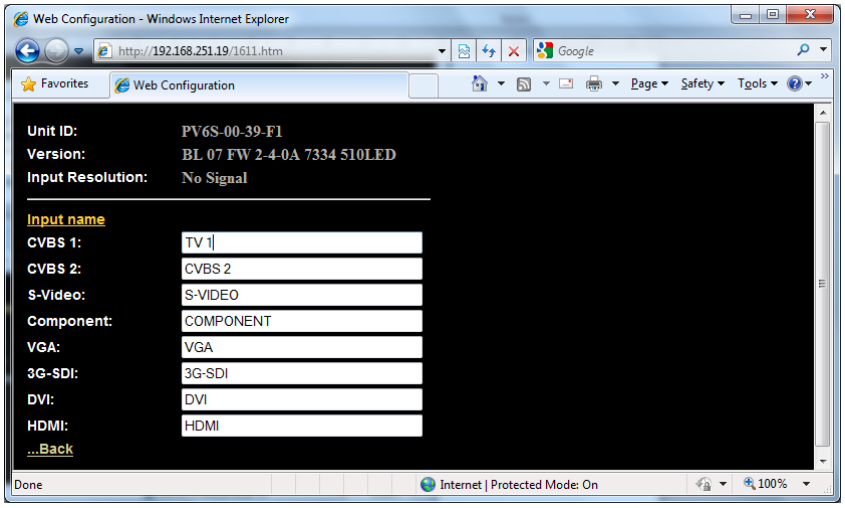
A slider value can be changed by moving the mouse pointer over the slider, click and hold the left mouse button and move the mouse to the right or left to decrease or increase the value. Also, the slider can be controlled in single steps with the mouse wheel.

Values can be entered directly in the field beneath the slider. Click into the field, enter the new value through the PC keyboard and click with the left mouse button to any location outside the field to update to the new value.



Renaming the input channel is used as an example to explain the alpha numeric field changes. Move the mouse pointer into the alpha numeric field and click on the left mouse button. The cursor can be controlled with the right and left and back space keys of the PC keyboard. The new name for the input channel (here a change was made from the default name CVBS 1 to TV 1) can be entered.

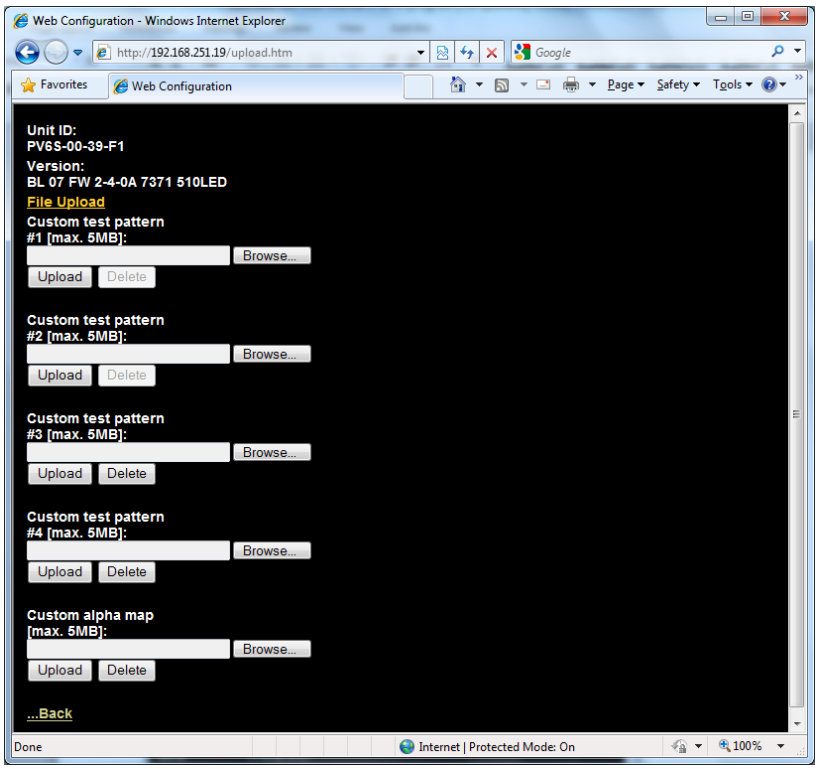
The new name is stored when clicking with the left mouse button to any location outside the field.



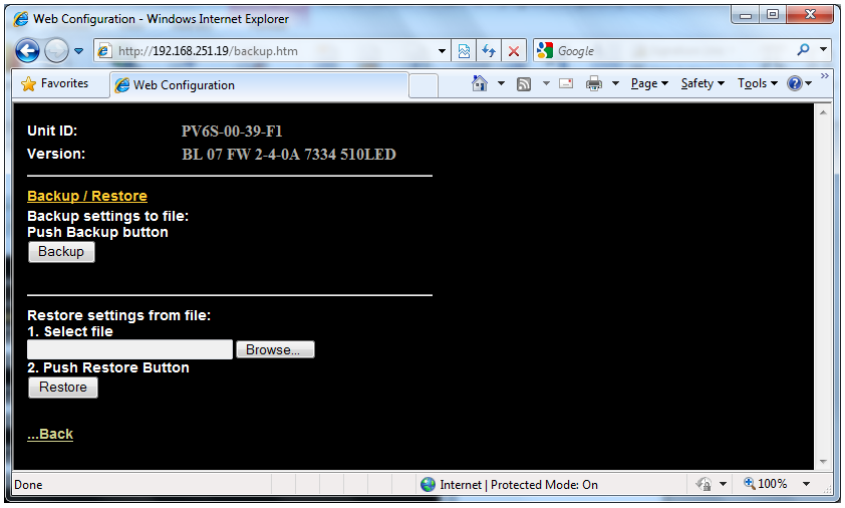
A page for file uploads is provided.

Test patterns can be created on a PC and uploaded to the VP-794 unit.

Also, an alpha map can be loaded to VP-794. Details are outlined in section 4.



VP-794 set-ups can be backed up to a PC and restored later through Web browser uploads.



3.5. Introduction

The front panel has keys and a jog wheel for OSD and local LCD menu navigation and direct keys for input channel selection.

When applying power to the unit it starts up. This is indicated by the green ON LED flashing. Once the unit is operational, the ON LED is permanently on.

1 – Standby key: By pressing the Standby Key, the unit is put into standby mode. This is indicated by the red Standby LED being permanently on. The red Keylocked LED indicates a keypad locking condition issued through the menu. If a key on the front panel is now pressed a menu message is displayed and displays the multiple key press to be applied to unlock the front panel keys.

2 – Input channel selection keys: All input channels can be directly selected. The active channel is indicated by the red LED above the corresponding channel key being ON.

3 – Test Pattern key: Directly activates a Test Pattern. Use the up and down keys to toggle trough the available test patterns. The LED above the switch is switched ON when in Test Pattern mode.

4 – Menu navigational keys: With the Menu/Enter key the menu is activated, this key also acts as an Enter key for menu changes. A jog wheel is used for menu navigation and changing values. To exit the menu or any submenu press the Back key or navigate to the Exit item and press the menu/enter key or press the jog wheel.

5 – Front Panel LCD: The Menu is also shown on the LCD front panel.

6 – Jog wheel: The wheel is used for navigating through the menu system and making value changes. The jog wheel has a push function. Pushing the knob has the same effect as pushing the menu/enter key.

With the following multiple key presses further functions can be applied:

Keypad unlock:	Back and Menu
Mode reset:	Back and S-Video
Factory reset:	Back and YPbPr (in live operation or at power up)
Set output mode to 720p:	Back and VGA

The back panel features all input and output connectors, communication ports and the power supply connector.

1 – SD, HD-SDI, 3G-SDI input

2 – Composite Video 1 (RCA) and S-Video input

3 – Composite Video 2 (BNC) and Genlock input (BNC)

4 – Digital audio output

5 – HDMI input

6 – DVI-D and VGA input

7 – YPbPr and RGB(S) video input

8 – DVI-D and VGA output

9 – 3G-SDI output

10 – USB port

11 – TCP/IP port

12 – RS232 port

13 – Power supply connector

3.6. Main Menu

The main menu lists the input channel select item, 6 sub menus, and a menu item for automatic setup of VGA modes. The 6 sub menus are Output, Color, Geometry, Multiple Unit, Enhancement and System.

On each menu page an Exit menu item is available to leave the menu or submenu. VP-794 also has a separate back key to leave a submenu.

Some adjustments are not applicable to all signal types or operating modes, in which case those non-applicable functions will be greyed out and are not accessible.

All menus have a top status line and a bottom line indicating the firmware revision number.

In the status line the currently selected input channel is indicated and the detected mode is identified. The bottom line shows the firmware revision number of the boot-loader behind BL and the revision number of the firmware behind FW.

Navigating the menu system or changing values is done with the jog wheel.

To set up your VP-794 it is recommended that you follow this procedure:

Choose the correct output mode and parameters to suit your projector or videowall.

For a LED videowall set window size to match the LED videowall module to be driven using the built in test patterns, the white box around the outside of the 'Aspect Test' pattern is particularly useful for this purpose.

Select the correct input signal.

Set the input levels and features appropriately to optimize the appearance of your image.

Set any other parameters to suit your application.

Note: The processor is designed to have separate memories for all the settings in each section. All Input parameters are specific to your chosen input channel and input signal type, unless specified, they are not global to the unit. If you change the settings in, for example, the composite video channel you will not affect the settings you may have made in for example the DVI channel.

All Output parameters only affect the output, they do not affect any of the inputs but note that the appearance on the videowall because it is the output these adjustments will appear to be global.

3.7. Input

The list of available inputs can be scrolled through using the jog wheel. The new input is not selected until the Menu key is pressed. The list of inputs are: CVBS 1, CVBS 2, S-Video, Component, VGA, 3G-SDI, DVI, HDMI and Test Pattern.

Test patterns can be generated by VP-794 without needing an input connected.

When Test Pattern is selected as the input and menu is off, the required test pattern can be chosen by the jog wheel.

3.8. Output

This menu contains adjustments associated with setting up outputs from the unit. The items are organized in four sub menus, Display Type, Gamma/Color/Crush, Output Config and Output Window Size. Use the jog wheel to scroll to the required item and press the Menu key.

3.8.1. Display Type

Settings: LCD/Plasma, Projector & LED

The Display Type setting defaults to Projector.

In LED mode the Windows Size menu is available which allows easy to use adjustment to fit in a given LED module.

Note: be sure to select Projector if you drive a projector and need the warp and blend functions.

Set to LCD/Plasma if you want only scaler functions and do not need the warp functions to be shown in the menu system. In this mode also the Flicker Filter becomes available.

3.8.2. Output Mode

Settings: 640x480, 800x600, 1024x768, 1280x768, 1280x800, 1280x1024, 1400x1050, 1600x1200, 1920x1200, 480i, 576i, 480p, 576p, 1080i, 720p, 1080p

Set up the desired output resolution with output mode. The output mode setting should match the native resolution of the imaging device to avoid double scaling.

Note: If selecting for an LED videowall display choose a setting that is equal or greater than the display and then use the window size adjustment to accurately scale to the LED videowall.

Note: Some low cost LED videowalls display artefacts when using lower resolution settings. To deal with these artefacts it is sometimes necessary to choose a much higher resolution than expected and then use the window size adjustment as above.

Note: The 3GSDI output does not feature the PC mode resolutions, only 480i and p, 576i and p, 720p and 1080i and p output modes are supported. Available SDI output modes are indicated by an SDI connector symbol in the output mode selection list box of the OSD. SDI output modes not supported are indicated with this symbol crossed out red.

The default output resolution as set by the factory or after a user issued factory reset is 640x480**. If only a SDI capable monitor is connected no image is displayed and consequently the output resolution cannot by changed through the OSD. Pressing the Menu and Contrast up and Contrast down key combination will switch the output resolution from 640x480 to 480i which SDI monitors should be capable to display**. If a DVI or VGA monitor has issues displaying this 480i mode, by pressing the key combination again the 640x480 output mode is set-up which all DVI and VGA monitors should be capable to display.

3.8.3. Location

Settings: Front Tabletop, Front Ceiling, Rear Tabletop, Rear Ceiling

The image can be flipped to accommodate different projection scenarios as well as screens mounted upside down.

3.8.4. Frame Rate

Available settings: 60 Hz, 50 Hz, 48 Hz, 24 Hz, Auto

In auto mode the output frame rate follows the input frame rate as configured in the Output Config menu.

Signals with 24Hz, 25Hz, 48Hz, 50Hz input modes get special treatment,

Modes with other refresh rates are displayed at 60Hz.

24Hz input modes will be output at 24Hz if the output resolution is set to either 720p or 1080p and the Frame Rate setting in the Output Config menu includes 24Hz, otherwise it is displayed at twice the rate if the Frame Rate setting in the Output Config menu includes 48Hz. Otherwise a 24Hz input mode is displayed at 60Hz.
48Hz input modes will be output at 48Hz if the Frame Rate setting in the Output Config menu includes 48Hz. Otherwise it is displayed at 50Hz.

A 25Hz input mode is output at twice the frame rate 50Hz. An exception to the 24 and 25Hz input mode treatment is if the output resolution is set to 480i or 480p. 480i and 480p are always run at 60Hz output rate.

50Hz input modes are displayed at 50Hz output rate.

The output frame rate can also manually set to 24Hz, 48Hz, 50Hz or 60Hz if possible, i.e. such output modes are available.

Only 720p and 1080p output modes are available with 24Hz refresh rate.

480i and 480p output modes are only available at 60Hz refresh rate.

For all other modes 48Hz, 50Hz and 60Hz refresh rate is available.

3.8.5. I/O Lock

Available settings: Off, Source, Genlock, Auto

If I/O Lock is switched OFF the output is run with a fixed refresh rate determined by the frame rate setting. This setting will result in the output vertical refresh rate deviating from the input refresh rate, even if both are nominally at the same rate. This causes occasional frame dropping or repeat.

If I/O Lock is set to Source the output refresh rate is following the input video refresh rate if possible.

If I/O Lock is set to Genlock the output refresh rate is following the vertical sync of an externally provided signal (GENLOCK BNC) if locking is possible.

Locking is achieved by modulating the output clock and works if input and output refresh rate are nominally at the same rate when frame rate is set to 60Hz and the video input is also 60Hz. If the video input rate is 50 Hz and the Frame rate is set to 60Hz, the output will enter free run mode.

Note: When Frame Rate is set to Auto the matching frame rate is chosen.

When I/O lock is set to Auto and a Genlock source is present to the GENLOCK BNC. The processor will lock with the external genlock signal if possible. If genlocking is not achievable, locking to the video source frame rate is tried. If that is not possible the output is running in free-run mode.

The status line of the OSD window under Sync Mode indicates if the output signal is locked to the input signal (I/O Locked or Genlocked) or in free run mode (Free Run).

3.8.6. Native Color Temp

Settings: 5500, 6500, 7500, 9300, 10000

Native Color Temp allows the user to select from pre-configured color temperatures to match the display. If both Native Color Temp set here in the Output menu and Color Temp set in the Color menu are set to the same value, no conversion is performed.

3.8.7. Output Gamma

Settings: 1.0 to 3.0 in steps of 0.1

Output gamma allows to re-gamma video signals with pre-configured gamma values to match the display. Input gamma and output gamma both default to 2.2. If they are both set to the same value, there is no effect on the image.

Note: If an adjustment to reduce the level of red in the image is required, select a higher number for the (input) Color Temp in the Color menu, or a lower number for the Native Color Temp in the Output menu.

3.8.8. Black Crush

For LED videowalls:

Note: The input black level should be optimized prior to using Black Crush and the TNR (and where applicable MPEG) noise reduction filter settings should also be optimized first. Black Crush is not a replacement for correct input settings but is available to clean up any remaining black level noise on the signal which may become apparent on very bright LED videowalls

Settings: 0 to 255 in steps 1

Black Crush provides a coring function on the output stage of the VP-794. This allows low-level noise in dark areas to be clamped to black which can be useful on LED videowalls on which black level noise can be particularly noticeable as ‘sparkles’. It modifies the black response of the gamma & color curves so as to hide any black-level noise which may be apparent on the LED videowall when high LED brightness is used, but does this without reducing peak white brightness,

Note this is not the same as adjusting the black level.

It is recommended to use a setting between 0 and 16 and not more than 20. For most LED videowalls the optimum setting for Black Crush is between 8 and 20. For particularly noisy subject material 24 can be used but detail loss may occur in dark areas. If too high a setting is chosen, image solarization may be observed where dark image areas turn completely black or even change color.

3.8.9. Output Config

This Menu provides items to configure the output port.

Sync Mode

The VGA output port can be operated with separate syncs, composite syncs and Sync-On-Green.

Internally, the display interface processes data at a full ten bits per color.

Optimize for Display

Settings: DVI forced, Optimized, DVI/HDMI

Internally, the display interface processes data at a full ten bits per color. A resolution of ten bits per color is provided for the VGA output. The color depth on the DVI-D output is determined by the supported standard of the attached monitor or device when set to DVI/HDMI.

For DVI 1.0 and HDMI 1.1/1.2 devices it is 24 bit, for HDMI 1.3 compliant devices it is up to 36 bit.

DVI forced will output with 24 bit color depth irrespective of the supported standard of the attached monitor.

When the Optimized setting is enabled the output resolution is automatically set to the native screen resolution of the attached display. The color depth is determined in the same way as when set to DVI/HDMI.

DVI Color Space and DVI Range

The color space of the DVI output port can be set to RGB or YPbPr, the range can be set to Expand, Normal, Compress and Auto.

A limited video range is only using the following greyscale for video information - 8 Bit System: 0x01 .. 0xFE, 10 Bit System: 0x004 .. 0x03FB.

Auto makes the best choice for the range for the DVI and 3G-SDI output. If the HDMI/DVI output does not behave as expected because the HDMI display is not evaluating AVInfoFrames properly, the range can be changed manually.

Frame Rates

Settings: 60/50 Hz, 60/50/24 Hz, 60/50/48, 60/50/24/48

Limits the possible output frame rates that can be selected. It is primarily to be able to limit the choices available for the Auto refresh rate configuration.

3G-SDI Data Map

720p and 1080i HD-SDI data can be output in YCbCr 4:2:2, YCbCr 4:4:4 or RGB 4:4:4 mode.

3GSDI data can be output as Level A or B data.

3.8.10. Output Window Size

For LED videowalls:

In this submenu the size of the output window can be scaled to fit exactly the size of your LED videowall, i.e. the image size is reduced and positioned according to the right, left, top and bottom edge slider setting. The image can be reduced to as few as 128x96 pixels.

A reset function is provided for convenience to set all sliders back to full output resolution.

Note: When the Windows Size function is enabled the latency of the system increases by 1 frame.

3.9. Color

This is an INPUT channel menu containing adjustments associated with setting up **inputs** to the unit.

3.9.1. Black-Level Offset

Settings: 0 IRE, 7.5 IRE

Used to select 7.5 IRE black level set-up adjustment. Should always be set to 7.5 IRE for HDMI video and NTSC video inputs and should usually be OFF for PAL analog video inputs.

3.9.2. Black-Level

Settings: -50 to 50 in steps of 1

Black level controls the offset applied to the video signal. (same as the brightness control on a TV)

3.9.3. Contrast

Settings: -50 to 50 in steps of 1

Contrast controls the gain applied to the video signal.

3.9.4. Saturation

Settings: -50 to 50 in steps of 1

Control of video color saturation, (applies individually to all video inputs but not computer input signals or formats).

3.9.5. Hue

Settings: -50 to 50 in steps of 1

Control of the hue of the color of a video signal, Normally only needed when playing NTSC signals or video transferred poorly from an NTSC origination. (applies to all video inputs but not computer input signals or formats).

3.9.6. RGB values

This is a user-defined color temperature setting whereby individual R,G,B gain (white balance) and offset/bias (black balance) can be set so as to accurately calibrate a particular **input** to the display device.

3.9.7. Color Temp

Settings: 5500, 6500, 7500, 9300

A preset range of Color Temperature which allows the user to select from pre-configured color temperatures to match the color temperature of the incoming signal. If both Color Temp set here in the Color menu and Native Color Temp set in the Output menu are set to the same value, no conversion is performed.

3.9.8. Input Gamma

Available settings: Gamma 1.0, Gamma 1.5, Gamma 2.2, Gamma 2.8

Set this value to match the native gamma of the input signal.

Input gamma and output gamma both default to 2.2. If they are both set to the same value, there is no effect on the image.

3.10. Geometry

This menu contains adjustments associated with setting up position, aspect ratio and scale of the input signal..

3.10.1. Horizontal and Vertical Position

Settings: in steps of 1 pixel or line

Change the positional values to match the display boarders.

3.10.2. Edge Control

Submenu for changing the position of the image edges, effectively scaling the image in horizontal and vertical direction.

3.10.3. Warp

Note:- This menu is only available when Display Type is chosen as **Projector**.

The warp applications are Keystone, 4-Corner, Rotation, Protrait 90°, Portrait 270° and PC.

The projection condition can be Front Table-top, Front Ceiling, Rear Table-top or Rear Ceiling. The corresponding image flip is applied in addition to the following warp applications.

The warp applications are **Keystone, 4-Corner, Rotation, Portrait and PC**.

In the **Keystone** application the image can be adjusted to match a horizontally and vertically tilted screen. Also, Pin and Barrel distortion of the lens or screen can be adjusted simultaneously.

Under the **4-Corner** application all corners can be moved and the image linearity is calculated to fit into the given trapezoid. Note that this function is designed to be used on Flat rectangular screens only. For more complex shapes use the PC mode.

The **Rotation** application rotates the image from -180 to 180 degree (one full circle) one degree at a time.. At the same time Pin and Barrel distortion of the lens or screen can be adjusted again.

Special **Portrai**t warp applications for clockwise (90°) and counter-clockwise (270°) rotation with scaling are provided. These functions cut out the centre of a normal landscape video signal, rotate it by 90 degrees and then scales that centre portion of the signal to fit a portrait mounted screen. Predefined warp maps for portrait mode act on a 16:9 input image. The area is rotated and scaled such that is fills a 9:16 screen.

With **PC** application activated the VP-794 communicate with the PC tool Warp Generator.

www.kramerelectronics.com .

Warp Generator allows you to define an arbitrary screen in live operation by projecting a grid on the surface and move the grid points to get a rectangular output. This grid information can then be downloaded in one of eight slots used for real-time processing of image data which make the image appear rectangular on a curved screen.

For convenience all settings can be reset with one button provided in the submenus.

3.10.4. Picture Format

Settings: **Standard, Full Screen, Crop, Anamorphic**

Picture Format allows a user to select the displayed aspect ratio where the signal input is different to the display panel's natural aspect ratio.

Note that some aspect ratios may not be applicable to all signal types, in which case selecting a non-applicable aspect ratio conversion will have no effect on the displayed image. When a 16:9 image is displayed on a 16:9 panel all settings give an identical full screen image.

Standard preserves the aspect ratio of the incoming image and scales the image to fit into the size of the panel. Non-used areas of the panel are displayed black (letterboxed).

Full Screen scales the image to the size of the panel without preservation of the aspect ratio.

Crop preserves the aspect ratio and scales the image to fit the screen. Either the top and bottom or right and left areas of the image are cropped.

Anamorphic scales the input image such that it is displayed with a 16:9 aspect ratio when displayed on the screen. The image is further scaled to fit into the size of the panel and either bordered by the right and left side or bottom and top of the panel. Non-used areas of the panel are displayed black (letterboxed).

3.10.5. Overscan

Settings: 0 to 10 in steps of 1

Overscan is used to slightly zoom into the image. Thus, the border area of an image is no longer displayed on the screen. This can be used to cut off unwanted features at the top or bottom from such as time code and head switching in legacy video images.

3.10.6. Pan Tilt Zoom

This menu provided settings to zoom and shrink the image, as well as panning within the image.

Pan Tilt Zoom (PTZ) can be switched ON or off.

When switched ON the latency of the system is increased by one frame. Thus, there is a difference of a PTZ setting OFF or ON with no zoom.

PTZ settings can be saved per mode or globally, i.e. if applied globally the same PTZ settings are applied when switching input channels or changing the input mode.

The Zoom slider allows to zoom into the image or shrink it.

When Aspect Lock is set to ON the separate slider for zooming vertically is greyed out and the horizontal zoom or shrink factor is used as vertical factor as well. The aspect ratio is preserved.

When Aspect Lock is OFF horizontal and vertical scaling factors can be chosen separately.

With the Pan and Tilt sliders panning within the image in horizontal and vertical direction is possible. Off raster panning is allowed, i,e, the image can be shifted outside the active area of the display.

For convenience the PTZ settings can be reset with one button.

3.11. PiP

VP-794 can be rebooted in a single unit configuration in the System Menu. Then the multiple unit menu is replaced by a PiP menu. It contains adjustments associated with setting up source, position and size of a picture in picture video image.

3.11.1. PiP Input

Selects the video source for the PiP window.

The available PiP video sources depend on the currently displayed (main) video source.

If the main video source is HDMI, DVI, DVI-A, VGA or COMPONENT the available PiP sources are CVBS1, CVBS2, S-VIDEO and HD-SDI.

If the main video source is CVBS1, CVBS2, S-VIDEO or HD-SDI the available PiP sources are HDMI, DVI, DVI-A, VGA and COMPONENT.

3.11.2. PiP Mode

Settings: Off, PIP, PAP, POP

Three picture in picture modes can be invoked.

PIP displays a second channel within the main image.

PAP displays both pictures side by side scaled to the vertical size of the panel.

POP displays both images side by side preserving the aspect ratio of each source. The unused areas of the panel are displayed black.

Note: PaP is not available with test pattern and also not available with PTZ activated. PoP has the same limitation and the output resolution needs to have greater or equal to 768 lines.

3.11.3. PiP Adjust

Menu proving controls for sizing and positioning the PiP.

The quadrant for the PiP display can be chosen to be Top Left, Top Right, Bottom Left, Bottom Right and Free H and V.

The PiP size can be chosen to be Small, Medium, Large, and Free W and H.

Note: Large is always available. Small and Medium are only available if the output resolution is greater or equal to 768 lines and the PiP mode has less than 1920 horizontal active pixels.

When **Free H and V** is selected sliders for setting up PiP position are activated.

When **Free W and H** is selected width and height of the PiP can be controlled.

Note: The maximum PiP width is 960 pixels, i.e. if an output resolution with more than 960 pixel in horizontal direction is chosen the PiP cannot be enlarged to a full image.

3.11.4. PiP Show and Hide

Settings: Show, Hide

When activating and deactivating PiP processing, video processing is halted for a short period. This can be avoided by activating PiP (PiP Mode set to PiP at all time) and showing or hiding the PiP window. The drawback of this method is that when PiP is hidden and a PiP source mode change is detected because it is not stable, the main image is halted for a short period which may be irritating.

3.11.5. PiP Show and Hide Transition

Settings: Instantly, Fast Fade, Slow Fade

The fade in an out method for PiP show and hide can be controlled through this menu item.

3.12. Multiple Unit

VP-794 when operated it's Projector or LED modes and in the default 'multiple unit' configuration (not PIP) it has a Multiple Unit menu. This is to set up each unit for use in a multi screen application.

Multiple screens are stitched together to provide a bigger display with higher resolution than a single display.

Each display is driven by a separate VP-794 unit.

In a multi projection display the individual projections typically are chosen to overlap to give seamless transitions. Multiple LED videowalls or LCD and Plasma screens do not have overlapping regions. The Blend Width is set to zero..

Important: When using multiple VP-794 units to drive one single large screen, it is essential that all VP-794 units are I/O locked, otherwise motion tear will be observed at the boundaries of the image processed by each VP-794 unit. It is also essential that all VP-794 units are setup for the same processing latency (either all units are in Best Picture mode or all units are in Low Latency mode).

The processors in a multi screen system application can be used in two ways

1/ Auto zoom on:- processers cut out the specified section of the image and scale this section to fill the projected area.

2/ Auto zoom off:- processors do not cut the image, the correct portion of the image including overlapping blend region must be supplied to each processor independently.

When using the Auto Zoom function explained below, each VP-794 unit gets the same graphics or video input signal through a distribution amplifier. The VP-794 unit cuts out and resizes the image to display the part of the image assigned to the corresponding screen.

In a **multi projection** display the individual projections typically are chosen to overlap to give seamless transitions.

Overlapping regions are illuminated by multiple projectors and are brighter than non-overlapping regions. These can be Soft Edge Blended for a uniform brightness over the total display the brightness in the overlapping regions has to be reduced electronically.

Important: When using multiple VP-794 units to drive one single large screen, it is essential that all VP-794 units are I/O locked, otherwise motion tear will be observed at the boundaries of the image processed by each VP-794 unit. It is also essential that all VP-794 units are setup for the same processing latency (for example, either all units are in Best Picture mode or all units are in Low Latency mode).

3.12.1. Auto Zoom

Available settings: ON, OFF

Switches on the auto zoom resizing the video image to display the assigned part of the total image.

The default is AutoZoom is OFF

When Auto zoom is turned ON the processor will cut and scale the portion of the picture selected by the matrix size and position selected – described below

Note The menu is scaled by the warp engine and may exceed the size of the screen. Also, only the active video area can be used for the on-screen menu. This would crop the menu and make it impossible to navigate. In this case auto zoom is deactivated and a message will indicate such situations. After changes are made to correct the situation AutoZoom can be reactivated.

3.12.2. Units Wide and Units High

Settings: 1, 2, 3, 4 and 1, 2, 3, 4 for the maximum matrix size of 16

Provides the VP-794 unit information of the multi screen installation. The number of horizontally and vertically installed screens or projectors is entered.

Note: This function can be used in conjunction with the item below to select the blend regions to be provided even when auto zoom is turned off

3.12.3. Horizontal Pos and Vertical Pos

Settings: 0 to 3 indicating co-ordinates 0,0, to 3.3 for the maximum matrix size of 16

With Auto zoom turned ON this provides the VP-794 unit information of which window portion of the total image it is assigned to and has to process (cut out and resize).

Note:- This function can be used in conjunction with the item above to select the blend regions to be provided even when auto zoom is turned off

3.12.4. Blend Width

In LED mode: This should be set to zero

In Projection mode:

The blend width menu provides sliders to set up the overlap region for left, right, top and bottom blend region.

Note With the VP-794 model when changing the slider value from within the OSD the blend area is not updated 'live' immediately. An update is forced when pressing the menu/enter button, thus the slider is replaced by the menu. This is not ideal, but excessive blend area write time suggested this approach.

The overlap is set up in output pixels with a range of up to one third of the output resolution. For a configuration with two projectors in horizontal direction the overlap can be higher to allow 16:9 images to fit on two combined projectors with an aspect ratio of 4:3 or 5:4.

An offset for the blend region can be set-up as well. The region between the edge and the start of the blend area is black. The total pixels of blend area and offset region is limited by the same amount of pixels as for an offset of zero.

Note: Each VP-794 unit needs to be provided with the exact same value for left and right blend region. Top and bottom blend region have to be identical as well, but don´t need to have the same value as left and right. The VP-794 units do not communicate between each other and thus they have to make an assumption for auto zoom calculations and that is overlap of the neighbouring (and those beyond) projectors is identical.

3.12.5. Blend Curve Type

In LED mode: This should be set to off

In Projection mode:

The blend curve type menu sets the blending characteristics.

For setting up the overlap the Align Pattern should be used. Align Patter reduces the image intensity of each pixel in the blend area by half.

When the blend region set up through the blend width menu and the physical blend match the S-Curve characteristics can be switched on. The image intensity is gradually reduced from the start of the blend to the edge of the respective projector image.

The S-Curve Value slider allows to control the steepness of the S-Curve. For convenience in this Blend Curve menu a duplicate of the Output Gamma slider can be found to match the grey scale of the images.

When a custom alpha map was loaded into the file system of the unit it is recognized and the Custom Alpha Map menu item becomes available. Custom alpha maps can be uploaded through the Web or remote control API interface of HQView. The map can be switched ON and off. The map is combined with the Align or S-curve map internally generated.

3.12.6. Black-Level Uplift

In LED mode: This should be set to zero

In Projection mode:

This enables the user to provide a black level uplift to compensate for the additional light leakage from multiple projectors in overlap regions. The black level uplift can be set for the 9 possible regions of the image. Setting the black level uplift for the middle of an edge also sets the black level uplift for the two adjacent corners, and if needed the corners can then be set individually.

The sliders for all regions which are not involved in edge blending for a given multiple unit configuration are greyed out, and the black level uplift for all these regions can be set together using the Non-Blend Region parameter.

3.12.7. Reduce Black-Level Uplift Width

In LED mode: This is not relevant

In Projection mode:

The Black Level Uplift field may need to be adjusted to achieve a perfect result. There may be an area of light leakage beyond the edge of the active image from the projector. With these controls the edges of the black uplift region can be moved so they can be aligned with the edges of the area of light leakage. In the case of projection under non-rectangular conditions the projection fields of adjacent projectors are not aligned with the blend region. The corners of the non-blend region can be moved to allow tracking of the edge of the projection field of adjacent projectors.

3.13. Enhancement

The enhancement menu provides image enhancement functions. Note that the enhancement settings apply to individual video **input** signal channels only but not to computer graphics signals.

3.13.1. Sharpness

Settings: -50 to 50 in steps of 1

Control of the sharpening enhancement filters' levels. These are peaking filters to improve high-frequency response. Note that setting this control too high on a signal which already has good high frequency response will cause ringing or ghosting.

3.13.2. Detail

Settings: 0, 1, 2, 3

This filter provides powerful 2D image enhancement which can be used to greatly improve detail definition and clarity without causing image ringing or ghosting. It improves both horizontal and vertical detail. Correct setting of the detail enhance filter can make SD signals look virtually indistinguishable from true HD. At setting 0 the filter is switched off, with setting 3 providing the highest effect.

3.13.3. Video Filters

The video filters menu provides LTI and CTI filters, TRNR and MNR noise reduction filters and a CCS cross color suppression filter.

The LTI filter enhances the sharpness of the luminance component. The CTI filter enhances the color sharpness of the chrominance signal by increasing the steepness of color edges.

TRNR (Temporal Recursive Noise Reduction) and MNR (Mosquito Noise Reduction) are available for **SD input signals only**. These filters reduce spatial and temporal noise as well as block artifacts.

CCS is a filter to reduce luminance to chrominance cross talk of composite video signals (only) which appears as a coarse rainbow pattern or random colors in regions of fine details.

3.13.4. Flicker Filter

Note: This feature and the corresponding sliders are only available when VP-794 is operated in LED or LCD and Plasma mode to be set under Output/Display Type/Display. Also, **this feature is only available when the Display Mode is set to Low Latency**. In low latency mode the motion adaptive de-interlacer is switched OFF and the Flicker Filter is used to achieve a decent image quality.

The Flicker Filter reduces interlace horizontal line edge bounce or flicker when scan converting from an interlaced input format to a progressive output signal. By choosing the filter strength and recursion mode it is possible to choose between higher levels of flicker reduction or better motion reproduction. By default the filter is on.

Filter Strength controls the filter weighting of prior field versus current field. Recursion chooses between vertical filtering of current and prior input fields, or current field and recursive data output from filter during prior field.

3.14. System

This selection contains functions which are more applicable to system operation than to picture adjustment.

3.14.1. User

Settings: USER 1, 2, 3, 4

A predefined setting stored under a user name can be selected. Several settings of the VP-794 can be stored under a user name. Thus, different users can store their preferred VP-794 settings and recall these profiles by picking up their user name from this menu.

Note: Using the Web interface, (any number of) settings can also be stored and restored to and from a PC disc drive.

3.14.2. Names and Profiles

The Names and Profiles menu provides input masks to rename the generic input channels and user names. User names and input channel names can be changed to any word with a maximum of 12 alpha numeric characters with a value range of 0-9, A-Z and blank.

The Names and Profiles menu allows the user to store profiles under a certain user name. It also allows to copy user profiles by loading a profile stored under one user name and save it under another user name. Reset Profile allows to restore default VP-794 settings for the currently selected user.

3.14.3. Input Config

Inputs can be configured through the following sub-menus:

VGA Setup:

Submenu for adjusting analog computer video. A button for automatic setup of frequency and phase of the sampling clock is provided. This automatic adjustment is strongly recommended. Frequency (Clock) and phase can also be altered manually.

DVI/HDMI Setup:

The DVI-I connector will accept either DVI-D or VGA analog inputs. The DVI-I channel can be configured accordingly.

The equalisation of the DVI interface can be boosted to allow for extended cable length.

The automatic HDMI and DVI Color Space and Range settings can be overwritten in this menu. Range can be set to limited video mode or full range. The color space can be set to RGB or YCbCr.

The DDC can be taken off line. When setting HDCP Input to OFF HQView pretends to be non HDCP compliant forcing the source to not encrypt data which is not copy protected.

SDI Setup:

For 3GSDI you can choose between LevelA and Level B type input modes.

SDI audio input is routed to the HDMI and 3GSDI output connector by default. VP-794 can also be set to monitor audio on the SPDIF connector.

SDI Audio on the HDMI and 3GSDI connector and SPDIF connector are mutually exclusive.

Two consecutive SDI audio channels can be output on the HDMI and 3GSDI output interface. The group can be chosen. Or all eight SDI audio channels can be transmitted.

Component Setup:

The component interface of the VP-794 is configured through this submenu. The Color Space can be set to YPbPr or RGB. The sync signal can be stripped from the Green or Y channel with the setting 3 Wire or from the separate sync line with the setting 4 Wire. The Auto setting will automatically detect a sync signal and set-up the VP-794 accordingly. This is set in under Synchronisation.

Test Pattern:

When the OSD menu is OFF the test pattern can be toggled through by rotating the menu dial. For unit control through a Web browser or to set up a certain default test pattern use the input configuration menu.

Custom test patterns loaded into the file system of the unit through the Web interface, can be accessed through the same means.

Instead of custom test patterns also a screen grab of the current video can be stored in one of the four slots provided for custom test patterns.

The speed of the moving cross test pattern can be changed. Also, the foreground and background color and the line width of the moving cross test pattern can be changed in this menu.

Note: Most test patterns are scaled in multiple unit configurations with Autozoom enabled since they are useful for setting up the blend and warp of the system. The SMPTE, and Pluge Patterns are not scaled.

Switching Transition:

When switching input channels by default the last frame of the prior displayed image is frozen and displayed until a stable image of the new input channel can be shown. The switchover process is supposed to be as seamless as possible. The source and monitor add switching noise due to unforeseeable activity of the firmware in said devices.

By default VP-794 is in auto frame rate switching and I/O lock mode. In these modes the output of the scaler is forced to adopt the sync timings of the input signal

In order to get a best smooth switching result between unlocked sources, the source and monitor I/O lock and auto frame rate switching have to be switched OFF in the Output/Display Type menu. This allows the scaler to provide a constant output determined by its own in built clocks.

The switching transition of VP-794 can be set to Freeze, Blank, Fast Fade and Slow Fade. Freeze halts the prior channel image until the new channel image is stable. Blank switches the output to show a black screen instead of the last channel image. Fast and slow fade have the prior channel image faded out and fade into the new channel video image once it is stable.

3.14.4. Display Mode

The “Display Mode” can be set to either Low Latency or Best Picture.

In Best Picture optimum image processing is applied, whereas in Low Latency mode the lowest latency is achieved. The flicker of interlaced video is not suppressed totally for the Low Latency setting. Thus it has the disadvantage of conventional CRT TVs, but also their advantage of almost no delay in response, which is important for applications such as gaming, simulation or imaging in medical treatment.

The latency of the system is ¼ of a frame for progressive input and progressive output when I/O locked. If the output is free running the latency is oscillating between ¼ of a frame and 1 frame. Switching ON PTZ adds one frame of latency. Switching ON warp adds another frame of latency. If an interlaced video signal is processed in Best Picture mode, this will add one more field of latency. In Low Latency mode this extra field of latency is avoided.

3.14.5. Menu Settings

This menu provides items to change the menu position and menu display time, i.e. the time after which the OSD is switched OFF again with no user interaction. OSD Messages can be activated and deactivated.

The menu language can be altered and the keypad can be locked. To unlock the keypad a combination of keys has to be pressed at the same time. The locking of the keyboard is accompanied by the message that the keypad is locked and which keys need pressing to unlock the unit. When successfully unlocking the keypad the message shows up: Keypad unlocked.

VP-794 has a menu to switch OFF the OSD menu. The LCD menu – which is a copy of the OSD menu – then serves to navigate the menu. Also, the backlight level of the LCD itself can be set in this menu.

3.14.6. Network Settings

The Network Settings menu allows to configure the VP-794 TCP/IP address. Under Address Type a static or DHCP leased address can be chosen. The static address and Netmask need to be entered manually.

The Network Settings menu has a section with information on the DHCP Status and IP address assigned to the board, as well as the fixed MAC Address programmed into the VP-794. The DHCP status is OFF when static assignment is used or it displays an address when DHCP has leased an address accordingly or it is None assigned if the lease was not successful.

Note: When changing from DHCP to Static mode or vice versa it is strongly recommended that VP-794 is powered down after such a change, then powered back up, so that it is properly recognised by other devices on the network.

3.14.7. Factory Defaults

This button let you restore all settings to the default values of the VP-794, thus, provide a means to get back to a known (good) system state. A requestor will come up and ask to confirm prior to actual restore.

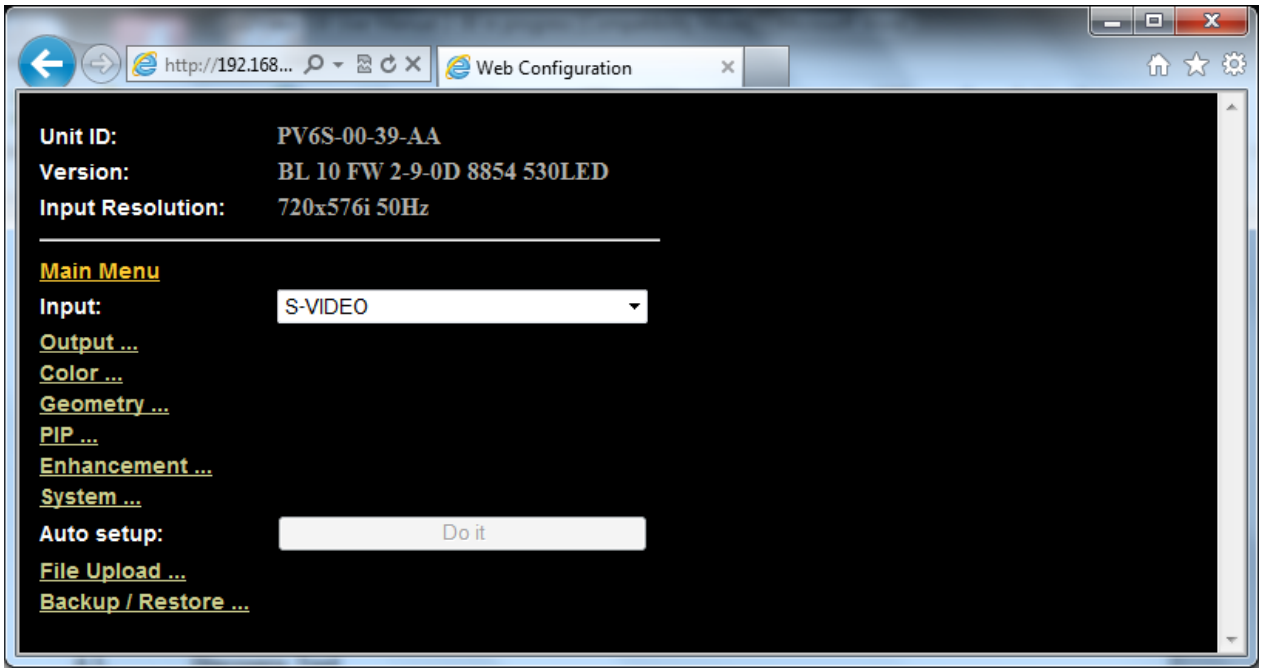
3.14.8. Operation Mode

Operating Mode allows to choose between the regular multiple unit mode with blend and warp and a single unit mode featuring PiP functionality. VP-794 will reboot when this setting is changed.

REMOTE CONTROL WEB SERVER

4.1. Introduction

VP-794 features a Web server which connects to a PC Web browser via TCP/IP. The menu system of VP-794 is mirrored into the Web browser and all menu items can be accessed and controlled through the keyboard or mouse of the PC.



4.2. Installing the Software

No extra software needs to be installed on a PC. The PC Web browser is used as the graphical user interface for all control items. To connect to the VP-794 the TCP/IP address of the unit has to be entered into the address list box of the Web browser in the following format http://xxx.xxx.xxx.xxx. The TCP/IP address assigned to VP-794 can be found in the System>Network Settings menu.

4.3. Discovery Tool

Kramer provides a DiscoveryTool.exe Windows application to identify Kramer boxes in the network. ***www.kramerelectronics.com*** .

Clicking on the link of the recognized box will open a browser and make a connection to the corresponding box. The box identifier is made up of “PV6S” in the case of VP-794 followed by the 6 least significant digits of the MAC address. The MAC address of the box can be found in the System>Network Settings menu.

Note: This is for use on a network not on a single wire connection.

4.4. Software Operation

Once the address has been entered into the Web browser starts to load pages from the VP-794 mirroring the menu system of the unit. All menu items are shown as their respective buttons, sliders and list boxes and can be accessed and altered with the PC mouse or corresponding navigational key presses.

Note: When changes within a submenu make other menu items available immediately when using the on-screen menu of the VP-794 this has to be either done manually by clicking on the refresh button of the Web browser or is done with the next periodic auto refresh.

Various values are set by sliders. For fine increment of a slider value click on the slider and use the mouse wheel to change the value in steps of 1. Click again and the value is applied.

4.5. File Upload

A page for file uploads is provided.

Test patterns can be created and stored on the PC. Four such custom test patterns can be uploaded to and stored by the VP-794 unit. Each of the test patterns in the four slots can be deleted and replaced by another test pattern.

The test patterns need to be in RGB 24bit .PNG format as supported by MS Paint®. For best detail the test patterns should be created with the output resolution VP-794 will be operated at. Non matching resolution test patterns will be scaled to the output resolution.

A single alpha map can be uploaded to the HQView unit.

The alpha map format is B/W 16bit .PNG as supported by Adobe Paintshop®. Only the most significant 10 bits are used.

Also a Kramer proprietary format without compression is supported. This format is intended for uploads in proprietary calibration systems directly controlling the VP-794 unit. Thus, a .PNG encoder does not have to be implemented on the host side. If the alpha map size exceeds the available storage space on the VP-794 unit the .PNG (lossless compression) has to be used.

The Kramer format is as follows:

```
// Custom Alpha Map File Format
//
// Offset Size Purpose
//  00     4   Header field used to identify custom alpha map file ('AM30')
//  04     2   Horizontal resolution in pixels (big endian)
//  06     2   Vertical resolution in pixels (big endian)
//  08     s   Image data
//
// Each line of image data is built like this:
// One 32-bit unsigned (four bytes, big endian) for every three pixels of image data
// Bits[31..30] - unused
// Bits[20..20] - leftmost pixel of three
// Bits[19..10] - middle pixel of three
// Bits[09..00] - rightmost pixel of three
// Each line has to be zero-padded to make up an integer number of 32-bit unsigned values
//
// e.g. 1280 pixels horizontally needs 427 values (1024/3 = 426.67, rounded up)
//
// So the size (s) of the image data is calculated like this:
// s = CEILING(ImageWidth /3 ) * 4 * ImageHeight
//
// Example of a 1920x1200 custom alpha map (all alpha values set to 1):
//
// 000000 41 4D 33 30 07 80 04 B0 (header)
// 000008 3F FF FF FF 3F FF FF FF (beginning of first line)
// ...
// 000A08 3F FF FF FF 3F FF FF FF (beginning of second line)
// ...
// 2ED608 3F FF FF FF 3F FF FF FF (beginning of last line)
//
// s = CEILING(1920 /3 ) * 4 * 1200 = 3072000 bytes
```

FIRMWARE UPDATE

5.1. Introduction

VP-794 has a USB port which allows a PC connection. With the Kramer PC Updater tool new firmware can be installed on VP-794 for feature upgrades and bug fixes.

www.kramerelectronics.com **.**

The latest firmware version for your processor is published on our Website. Save the file to your computer.

5.2. Updating Firmware

VP-794 accepts firmware downloads only in a dedicated Updater mode.

First disconnect the USB lead.

The unit is put in Updater mode by pressing and keeping the Menu key pressed at power up. If the Menu key is released within 10 seconds after power up VP-794 is in Updater mode. Otherwise, VP-794 is started normally.

Whilst the Menu key is still pressed the On LED is flashing. When in Updater mode the On LED is flashing two times repeatedly.

Now the USB connection between PC and VP-794 needs to be established and the Kramer PC Updater tool to be started.

The PC Updater tool allows to browse and select a firmware file in BREC format. Once a BREC is selected the Update Firmware button has to be pressed and the firmware download to the VP-794 into non volatile flash RAM starts.

After completion of the download VP-794 needs to be restarted normally (without pressing the Menu key) for the change to take effect.

This user manual complies with firmware revision 291D build 9495. Prior or later firmware revisions may deviate in details or lacking of newly introduced features.

ENVIRONMENTAL AND EMC

6.1. Recommended Operating Conditions

Temperature	0^{O}C to 40^{O}C
Humidity (non condensing)	0% to 95%

6.2. Storage

Temperature	-25^{O}C to $+85^{O}$C
Humidity	

6.3. CE and FCC Compliance

CE: This product complies with the requirements of 2004/108/EC Electromagnetic Compatibility Directive, and 2006/95/EC Low Voltage Directive. Compliance is to EN55022 Class A.

FCC: **WARNING:** This equipment has been tested and found to comply with the limits for a Class A digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause interference to radio communications. Operation of this equipment in a residential area is likely to cause interference in which case the user will be required to correct the interference at their own expense.

The user is cautioned that changes and modifications made to the equipment without approval of the manufacturer could void the user's authority to operate this equipment.

It is suggested that the user use only shielded and grounded signal cables to ensure compliance with FCC rules.

6.4. PAT Testing

Earth continuity testing under PAT regulations shall be done to the VP-794 with 8A or 10A only. A test with 25A may damage the unit.

In fact, VP-794 is IT equipment and the IEE Code of Practise to check earth continuity suggests an alternative 20-200mA test. If the PAT tester does not provide this method and a high current test is to be used instead a 8A or 10A test will be acceptable under the same IEE Code of Practise (a minimum of 1.5 times of the VP-794 internal 5A fuse).

You have to be careful where you connect the earth bond test lead when using 8A or 10A. It is to the metal chassis that you must connect the test lead (mains earth). DO NOT CONNECT to the connectors of the rear panel (signal earth). The VP-794 may never work again.

For the latest information on our products and a list of Kramer distributors, visit our Web site where updates to this user manual may be found.

We welcome your questions, comments, and feedback.

Web site: www.kramerelectronics.com
E-mail: info@kramerel.com

SAFETY WARNING
Disconnect the unit from the power supply before opening and servicing